

# RESPONSE SUMMARY

## Massing responses to reduce bulk above the podium

- Doubled building separation on southeast elevation
- Reduced density above the podium by 11%

## Sculpted upper massing to significantly improve solar access

- Sunlight in the podium courtyard increased an average of 15% between March and September

## Reinforced relationship between the heritage podium and new elements above

- Articulation of massing and materiality relates to podium elements
- Extension of grid above podium

## More diverse architectural and material expression

- Balcony articulation, variation in glazing strategies, solid panels

## Addition of passive sustainable design elements

- Sunshades/light shelves, dynamic glass, green walls

## Reduced parking with future alternative uses

- 8% reduction in parking stalls

## Re-oriented, south-facing daycare

## Addition of spaces to enhance community development

- Community art gallery, bicycle co-op, live/work artist studios

## Public artwork opportunities

- Retention and restoration of existing heritage artworks
- Potential locations for Public Art identified in the project

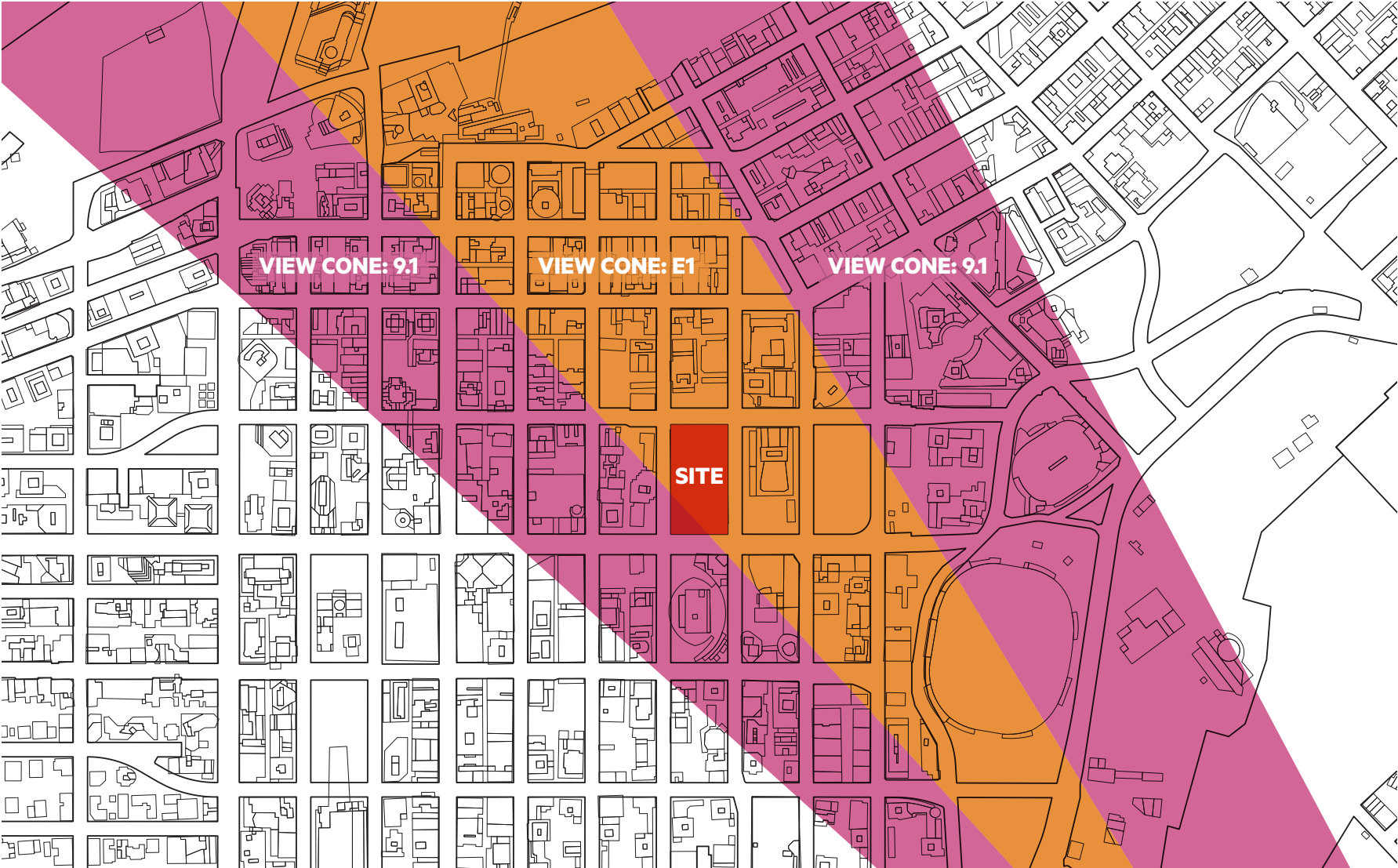
## Public rooftop deck

- 12,000 sf south-facing public outdoor space with views of the city and mountains

## Increased streetscape animation and porosity

- 75% of the street level building interface is accessible to the public

## Increased public access and engagement of the W Georgia St Plaza



Two view cones affect the site:

**View Cone E1**

from Cambie Bridge with an approximate height restriction of 225ft (68.6m) and

**View Cone 9.1**

from Cambie St which has an approximate height restriction of 285ft (86.9m).

# View Analysis



**View Cone E1:**

Cambie Bridge to Crown/Grouse - approximate height restriction 225ft



**View Cone 9.1:**

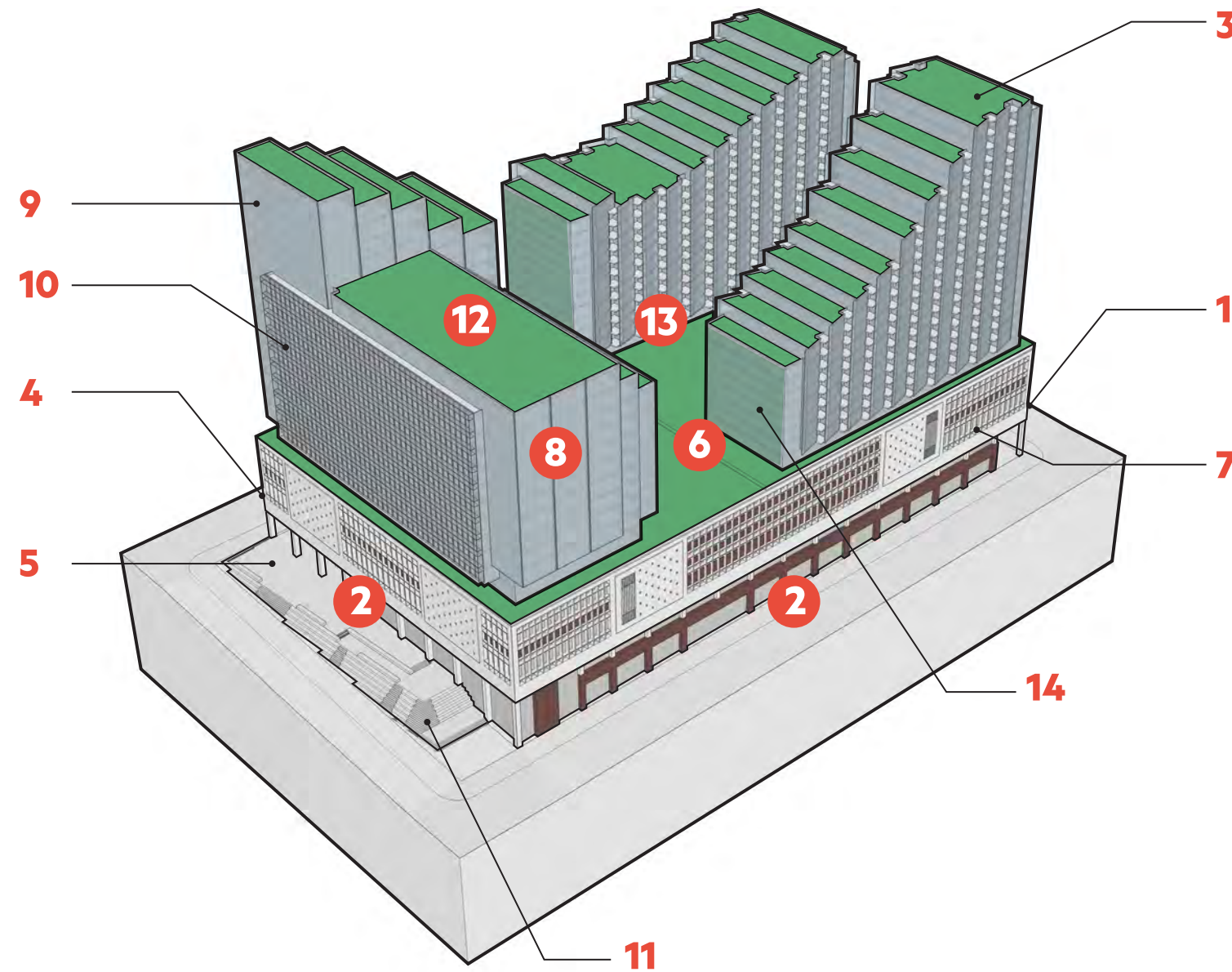
Cambie St to North Shore mountains - approximate height restriction 285ft

Due to existing vertical obstructions within the E1 View Corridor, the proposed mass of the northeast corner of the site would have no impact on the E1 View Corridor.



# View Analysis

## Rezoning Policy for Sustainable Large Developments Response Summary



- 1** Art Gallery + Bicycle Co op
- 2** Increased opportunities for public interaction + animation
- 3** 30% of total site area is landscaped, including extensive and intensive plantings and edible landscapes
- 4** Secure bicycle parking, electric bicycle charging, provisions for public bicycle infrastructure
- 5** Opportunities for public artworks in plaza + office lobby to increase animation
- 6** Refined Massing + orientation to optimize solar access, daylighting and reduce heating loads
- 7** Retention of heritage structure reduces waste, reduces embodied carbon and contributes to social sustainability
- 8** Triple glazed low-e windows
- 9** Dynamic glass on south facing elevations
- 10** Passive solar shading devices on south facade
- 11** Improved public access to the W Georgia St plaza including seating and shade trees
- 12** Office roof deck provides increased publicly accessible outdoor space
- 13** Improved solar access to courtyard, residential buildings and childcare facility
- 14** Southwest facing green walls

## Sustainable Site Design

### Building Reuse

- Social sustainability: Heritage retention
- Reduction in embodied carbon: reuse of existing structure, reduce need for virgin materials
- Reduction in waste: reuse of existing structure

### Orientation + Massing

- Allows the capture of solar gains on the south-facing façade to maximize daylighting opportunities and reduce winter heating loads
- Attention paid to favourable daylight in residential towers
- Position and massing of buildings tailored to allow sun penetration to podium courtyard throughout the day

### Shadow Analysis

- Shadow analysis informed massing and positioning of buildings in order to maximize access to daylight

### Glazing + Solar Shading

- Different treatment to each façade, based on orientation
- Low-e triple glazing to office building
- Dynamic glass on south façade to allow or reduce sunlight and solar gains depending on season
- Shading systems on each façade reduce unwanted solar gains in summer while allowing solar gains in winter

### Tree Retention

- 46 new street trees proposed
- 8 new trees on plaza
- 50+ trees for podium roof
- 30+ trees on tower rooftops

### Landscape

- Three distinct areas of accessible green space on the ground plane, podium, and building rooftops
- Large number of residential units and office tenants will have direct access to private and semi-private landscaped decks.
- Amenities such as urban agriculture, play areas and dining/BBQ areas will be incorporated into exterior spaces

## Access to Nature

### Existing Conditions

- Limited access to nature on original site
- Effort to rectify and integrate new development with accessible green space

### Tree Canopy

- Street trees (46); public plaza trees (8)
- Shading, aesthetic, and habitat benefits

### Access to Outdoor Space

- Street level green space and the office roof deck is publicly accessible creating a direct connection between the public and nature, green space on the podium and terracing roof decks is accessible for building occupants providing ample connectivity with nature

### W Georgia St Plaza

- Combining active water features, formal planting, and extensive seating
- Highly occupiable terraces at both the upper and lower floor levels with direct interior connections to the existing structure and continuous pedestrian flow
- Additional trees, seating and public art are woven into the design

### Courtyard on the Podium

- A central rooftop garden provides a feature landscape on top of the original podium as an attractive visual amenity for the residences and offices
- Water feature incorporates animated water elements for sound effects and incorporates skylights to daylight the spiral parking ramp below.
- Children's play area (shared with the daycare)

### Rooftop Gardens

- A series of urban agriculture beds, plantings and small trees are composed to define these interconnected spaces
- Inaccessible rooftops on the uppermost levels are covered by green roof planting consistent with the project's sustainability objectives for green space

### Habitat Creation

- 30% of site area will be green space

## Sustainable Food Systems

### Food Truck Provisions

- Provisions for dedicated food truck locations with electrical hookups (cleaner than natural gas, improved air quality, lower emissions, and lowered noise and costs – environmental, social, economic sustainability)

### Edible Landscapes

- Ornamental plants that also produce edible fruits will be planted throughout the common podium courtyard spaces for harvesting by all building occupants.
- Oregon grape, coastal strawberry, evergreen huckleberry, hazelnut, thimbleberry, salmon berry and apple tree

### On-Site Organics

- Considering inclusion of on-site organics management to support zero waste target

### Urban Agriculture

- Community garden area consisting of linear planting beds located on the office roof deck and on select areas of the residential roof decks
- Compost system is being evaluated for use in conjunction with communal kitchen (food scraps) and community gardens

## Green Mobility

### Green Mobility Plan

- Already high pedestrian activity, but new development adds additional at grade pedestrian oriented retail space around all four sides of a block currently devoid of any retail activity

### Mode Split

- Walkscore: 99 out of 100
- Very bikeable

### Transit Accessibility

- Canada Line + Skytrain within 400m
- Seabus + West Coast Express 700m
- Local and suburban buses surround the site

## Bicycle Infrastructure

- Class A bicycle parking will be accessed from Homer St
- Bicycle parking for residents will be developed in a variety of ways, with secure lockers, shared rooms and automated secure storage
- Electric charging stations for e-bikes and scooters will be provided for both residential and commercial uses.

## Bike Share

- The applicant team will work with the City of Vancouver staff to implement the city bike share program

## Pedestrian Interface

- Existing walking facilities around the site are comprised of 4.5 to 5-metre wide sidewalks along Hamilton St, Homer St, and Dunsmuir St

## Vehicle Provisions

- A new south facing public plaza is proposed along W Georgia St in place of the existing surface parking lot. The plaza will be programmed with public seating, art, lighting, wayfinding, soft and hard landscaping in addition to food and beverage services.

## Parking Reduction

- Non-residential parking stalls at a ratio of 1 parking space per 145m<sup>2</sup>, and a minimum of 499 Non-Residential stalls.
- Residential parking stalls at a ratio of 1 parking space per 123m<sup>2</sup>, and a minimum of 435 Residential stalls.

## Rainwater Management

### Green Roofs

- Targeted retention of 574 m<sup>3</sup> of rainwater runoff will primarily be controlled on site through vegetated green roofs.
- Commitment to green roofs equaling approximately 30% of the total site area
- Native and adaptive plants
- Extensive and intensive systems

### Stormwater Interception

- Systems to treat stormwater and remove particulate matter will be installed

### Quantity

- the run-off volume for a 2 year 24 hour storm event is expected to be reduced by 9.7% - primarily achieved by way of 30% vegetated site coverage

### Quality

- Packaged treatment solution such as Stormceptor or Jellyfish
- Designed to ensure a minimum of 90% of the project stormwater runoff is treated for quality.



## Zero Waste Planning

### Division Objectives

- Recycling “Lounge”: User-friendly three-stream waste management system
- recycling containers for glass, plastic, cardboard, paper, batteries, as well as on-site organic waste treatment.
- Organics may be processed on site using a contained bio-digester system that processes the organic material into nutrient rich water and/or fertilizer.

### Site Infrastructure Design

- Design supports increased recycling volumes encouraged on site and also manage those recyclables as efficiently as possible to minimize external environmental impacts

### Space for Waste

- Space for three-stream waste management in all of residential, commercial, food service facilities

### Recycling + Organics

- Organics are processed on site using a contained bio-digester system that processes the organic material into nutrient rich water and/or fertilizer.

### Education + Outreach

- “Recycling Lounges” to create a more polished atmosphere to facilitate sorting of waste streams
- Waste diversion rates tracked through ECO Tracker

### Operations Training + Support

- Sustainable Real Estate Management certificate course to all general managers, property managers, assistant property managers and senior property operations personnel at Bentall Kennedy

## Affordable Housing

### Affordable Housing Plan

- Range of unit types and tenures,
- Meet or exceed the requirements of the City’s Affordable Housing in New Neighbourhoods policy
- More housing affordability, types and choices, including housing for individuals and families that fall under the Housing Income Limits published by BC Housing, and purpose-built rental housing for moderate income households

## Low Carbon Energy Supply

### General Approach

- Optimize the heating and cooling loads of the individual component buildings relative to each other.
- Utilize a heat-recovery central heating and cooling plant to allow coincident and complementary heating and cooling loads to be exploited.

### Envelope

- Spectrally-selective low-e triple pane glazing for the commercial portion of the building and investigated for the residential, nominally R8 (RSI 1.4) center-of-glass.

### HVAC

- Office: 4 pipe radiant heating and cooling with ceiling-delivered displacement ventilation
- Residential: 4 pipe low-voltage perimeter fan coils with HRVs
- Retail: 4 pipe fan coil
- Central Plant: Heat recovery chillers (possibly including low temperature adsorption), central steam or condensing boilers

### Lighting + Power

- LED lighting with occupancy and daylight controls will be used in the office building.
- Low energy lighting will be used in the residential buildings and retail tenancies, with technologies specific to the space function.
- BIPV is being considered in a number of applications / locations.

### Targets

- Office: 80kWh/sm/yr
- Residential: 130kWh/sm/yr
- Retail – Food: 400kWh/sm/yr
- Retail – Non-Food: 200kWh/sm/yr

### Net Zero Carbon

- The carbon footprint of any required off-site energy will be negated through the purchase and / or generation of carbon offsets, resulting in a net-zero carbon project